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Gas-insulated switchgear assembly or component of a
gas-insulated switchgear assembly having an outdoor
bushing

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Description

The invention relates to a gas-insulated switchgear assembly having an outdoor bushing or to a component of a gas-insulated switchgear assembly having an outdoor bushing according to the preamble of Claim 1.

DE 100 20 129 C1 discloses an assembly having a surge arrester for a high-voltage system, comprising an isolator which is physically combined with a surge 15 arrester comprising resistive elements. The isolator is in this case in the form of a composite having a fixed body and a cast elastomer encapsulation, the surge arrester being embedded in the potting compound of the elastomer encapsulation.

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DE 196 427 736 C1 discloses a high-voltage circuit breaker having a hollow dielectric support, in whose interior a drive rod extends. The interior between the drive rod and the inner wall of the dielectric support 25 is filled at least partially with dissipation elements. For example, dissipation elements in the form of annular discs are stacked from the flange lying at earth potential up to the high voltage-side connection to the flange of the circuit breaker. Two or more stacks of dissipation elements may also be conductively connected in each case, on the one hand, to the high-voltage potential and, on the other hand, to the earth potential.

35 The invention is based on the object of specifying an effective and inexpensive means of providing overvoltage protection for a gas-insulated switchgear assembly having an outdoor bushing or for a component

of a gas-insulated switchgear assembly having an outdoor bushing.

This object is achieved, in conjunction with the
5 features of the preamble, according to the invention by
the features specified in the characterizing clause of
Claim 1.

The advantages which can be achieved with the invention
10 are in particular the fact that a separate frame to
which the surge arrester is fitted is no longer
required, which results, on the one hand, in cost
advantages (production costs, assembly costs) and, on
the other hand, in a reduction in the amount of space
15 required.

Further advantages are explained in the description
below.

20 Advantageous refinements of the invention are
characterized in the subclaims.

The invention is explained below with reference to the
exemplary embodiments illustrated in the drawing, in
25 which:

Fig. 1 shows a gas-insulated switchgear assembly
having a wall bushing and an adjoining outdoor
bushing, and

30 Fig. 2 shows an alternative means of fixing the surge
arrester.

Fig. 1 shows a gas-insulated switchgear assembly having
35 a wall bushing and an adjoining outdoor bushing. The
gas-insulated switchgear assembly 1 is fitted in a
building 2 and is thus surrounded by building walls, a
building floor and a building ceiling. For the purpose

of connecting operating means outdoors, for example
transformers, overhead lines and other operating means,
a wall bushing 4 is required which is led outside from
the building interior via an opening in a building wall
5 3. This wall bushing 4 is generally in the form of a
tube having a metallic shield connected to earth
potential.

Fixed to the foot 5, which is arranged outside the
10 building 2, of the wall bushing 4 are two or more
(depending on the number of voltage-carrying conductors
led through the wall bushing 4 or phases) tubular
outdoor bushings 6 having their in each case first end
sides (foot parts). The respective second end sides
15 (top parts) of the outdoor bushings 6 are interrupted
by the conductors 7, which extend within the wall
bushing 4, carry a high voltage and serve the purpose
of connecting operating means, for example a
transformer, or overhead lines.

20 For the purpose of protecting the gas-insulated
switchgear assembly 1 against, for example,
overvoltages caused by lightning, a surge arrester 8 is
arranged approximately parallel to each outdoor bushing
25 6 and is connected to the conductor 7 via a high
voltage-side connection piece 9 and to the foot 5,
which is connected to earth potential, of the wall
bushing 4 via a housing-side connection piece 10. These
two connection pieces 9, 10 are sufficiently
30 mechanically robust to bear the surge arresters 8.
Metal oxide arresters are preferably used as the surge
arresters 8.

According to the first exemplary embodiment shown in
35 Fig. 1, the connection pieces 9, 10 between the
conductor 7 on the top part of the outdoor bushing 6
and the surge arrester 8 and, respectively, between the
foot 5 of the wall bushing 4 on the foot part of the

outdoor bushing 6 and the surge arrester 8 are made of an electrically highly conductive metal such that they are at the same time electrical and mechanical connecting elements which are naturally designed such 5 that the wall bushing 4 and the foot 5 or the outdoor bushings 6 are not mechanically overloaded.

Fig. 2 shows an alternative means of fixing the surge 10 arrester. In this second exemplary embodiment, the connection pieces 9, 10 between the top part of the outdoor bushing 6 and the surge arrester 8 and, respectively, between the foot part of the outdoor bushing 6 and the surge arrester 8 are made of an electrically poorly conductive or nonconductive 15 material or metal, with the result that they are merely mechanical connecting elements. The electrical connections between the conductor 7 and the surge arrester 8 and between the earth potential of the wall bushing 4/foot 5 and the surge arrester 8 are made by 20 separate connecting conductors 11 and 12, respectively, which are formed from a rigid or flexible, electrically highly conductive material and extend, for example, parallel to the connection pieces 9 and 10, respectively.

25 Even though in the above-explained exemplary embodiment a gas-insulated switchgear assembly having a wall bushing and an adjoining outdoor bushing is described, the invention is not limited to this but may also 30 advantageously be applied for the following configurations:

- Gas-insulated switchgear assembly installed outdoors (in this application too, outdoor bushings are used, on which the surge arresters can be mounted; the metallic housing of the gas-insulated switchgear assembly is suitable to be fixed to the housing-side connection piece of 35 the outdoor bushing).

- Applications which use components of gas-insulated switchgear assemblies (for example circuit breakers + isolating switches in a gas-insulated housing) together with outdoor bushings (the metallic housing of the component of the gas-insulated switchgear assembly is suitable for being fixed to the housing-side connection piece of the outdoor bushing).
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- Dead tank breakers (circuit breakers in a gas-insulated, earthed metal housing; the metallic housing is highly suitable for being fixed to the housing-side connection piece of the outdoor bushing).
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